Public Comment Summary & Recommendations

MONTANA STATEWIDE OIL AND GAS ENVIRONMENTAL IMPACT STATEMENT AND AMENDMENT OF THE POWDER RIVER AND BILLINGS RESOURCE MANAGEMENT PLANS

Prepared for:

U.S. DEPARTMENT OF INTERIOR
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This Public Comment Summary & Recommendations Report has been prepared for the Bureau of Land Management (BLM) by ALL Consulting (Tulsa, Oklahoma) and subcontractor CH2M HILL (Boise, Idaho) in accordance with applicable contracting requirements specific to ALL Consulting's Purchase Order with the BLM and General Services Administration (GSA) contract for Environmental Advisory Services.

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1.0 PURPOSE AND NEED

During the public involvement process, the community is provided the opportunity to review and comment on issues identified by the Bureau of Land Management (BLM) and the State of Montana, identify new issues, and/or comment on the Draft Planning Criteria. Public involvement is the foundation of every successful public agency's mission and is necessary for competing interests to reach consensus on how to address multiple social needs. Solutions to difficult and important questions are rarely easy to achieve. There is no magic formula to meeting the needs and expectations of the public, nor is there one way to encourage their participation. Instead, the process of soliciting, listening, and responding to citizen, corporate, and other agency input about a public agency's plans for action can be a complicated, challenging and often intimidating process for all involved. However, it can be a rewarding and meaningful experience that leads to better decisions on issues of important public policy.

Seeking meaningful public involvement is important to sharing concerns of communities and to the final outcome of a program, project, plan or study. The BLM and its cooperators are committed to proactively providing opportunities for public comment. The public involvement process is successful only if it provides an opportunity to better serve the public and carry out the agencies' public service responsibilities.

2.0 PUBLIC INVOLVEMENT PROCESS

Involving the public in this initial phase of the process included inviting them to attend public scoping meetings, conducting public scoping meetings and receiving comments. Further public involvement includes addressing current news articles and maintaining information resources regarding the Environmental Impact Statement (EIS) process via a web page.

NOTIFICATION PROCESS

The public scoping meetings, including dates, times, and locations were announced in local and state newspapers, on radio and television stations, and to political offices and special interest groups by specific mailings. The notification to these organizations was sent out electronically on December 14, 2000. The Notice of Intent (NOI) to amend the Powder River and Billings RMPs and conduct scoping meetings was published in the *Federal Register* (Volume 65, No. 244, pp. 79422-3) on December 19, 2000. A list of all organizations notified can be found in Appendix A along with a copy of the NOI, electronic notification and several news articles regarding the announcement.

SCOPING MEETINGS

Five public scoping meetings were conducted during January 2001 at the locations shown in the exhibit below:

EXHIBIT 1
Location of Public Scoping Meetings
This exhibit lists the cities, meeting halls, dates, times and number of attendants per meeting.

City	Location	Date	Time	Turnout
Billings	Student Union Building – MSU-B	January 4, 2001	7:00-9:00 p.m.	107
Broadus	Community Center	January 9, 2001	2:00-4:00 p.m.	58
Ashland	Ashland Public Elementary School	January 9, 2001	7:00-9:00 p.m.	58
Miles City	Miles Community College	January 10, 2001	7:00-9:00 p.m.	42
Helena	DEQ Director's Office, Metcalf Bldg	January 11, 2001	7:00-9:00 p.m.	64

Over 300 people attended the five statewide meetings. Those in attendance included ranchers, landowners, the press, representatives of the Crow and Northern Cheyenne Tribes, Bureau of Indian Affairs (BIA), State and Federal agencies, public interest groups, private contractors, industry, and the general public.

Objectives and Goals

The BLM and State of Montana conducted this series of scoping meetings to begin gathering comments about issues concerning the public regarding CBM development. The objectives of the scoping meetings were to solicit comments, encourage participation, serve the public interests, and to carry out public service responsibilities. The goals of the scoping meetings were to establish an open and clear dialog with the

public, instill a sense of project ownership with the participants, and to develop a mechanism for defining the project's scope.

General Meeting Format

Logistics for the scoping meetings included arranging an accessible and appropriate venue, ensuring appropriate audio-visual equipment, and preparing directional signs to the meeting locales. Graphic materials, agendas, handouts and sign-in sheets were available at the scoping meetings.

Upon arrival, attendees were asked to sign-in and indicate whom they were representing. The scoping meetings followed an open-house format with a formal presentation given by the BLM to introduce the topics for discussion. Topics covered included the planning area, reason for the EIS, the BLM and State planning process, preliminary issues, contact points for further information, and how to provide comments. Exhibits with various visual and informational displays were placed around the meeting room with specialists from BLM and the State of Montana available to further explain the CBM EIS, answer questions, and solicit input. The meeting participants were given a timed (3 minutes) opportunity to express themselves during each meeting. The public was asked to record their comments on sheets provided at the sign-in table, or on the Comments and Suggestions forms. A few comments sheets were completed the day of the meetings; most were mailed at a later date. A copy of the BLM presentation regarding coal bed methane, the brochure, the Comment and Suggestion form, and the sign in sheet from each of the five scoping meetings is provided in Appendix B.

Comments Received

The original comment period was scheduled to end on January 17, 2001. On January 8, 2001, the BLM extended the comment period until January 31, 2001. More than 300 separate responses were received in written, electronic, and verbal (recordings from meetings) formats. Verbal comments were recorded at scoping meetings on tape and by hand. Electronic comments were received by e-mail and facsimile. Written comments came in the form of letters, completed Comments and Suggestion forms, and hand written notes.

NEWS ARTICLES

Several news articles were published related to CBM and the subject EIS prior to and after the public comment period. The articles covered such subjects as legal cases, meeting notices, water quality issues, air quality, State hearings, CBM regulation, and applicable lawsuits. Copies of available articles are presented in Appendix C.

MONTANA DEQ WEB PAGE

The Montana DEQ has developed a CBM Internet web site located at http://www.deq.mt.gov/CoalBedMethane . The web site provides the public with

information about CBM in Montana and northeastern Wyoming. In particular, it gives information about the statewide EIS for CBM and additional information pertaining to the potential impacts of proposed oil and gas development, including CBM. Other information included on the web site includes the status of CBM in Montana, environmental/economic issues, a calendar of events, press releases, public notices, news clippings, regulatory information, contact information, and links to other applicable sites having information on CBM.

3.0 PUBLIC COMMENT SUMMARY

This section provides a summary and analysis of the input received as part of the scoping process for the Montana statewide EIS. More than 2,100 comments were obtained from over 250 letters, comment forms, verbal recordings, and e-mails. The summary was conducted to consolidate the comments into resource areas and other areas of interest representative of similar expressions. It is vital to recognize that while an effort has been made to qualify the intensity of the publics' expressions, this analysis is not and should not be considered a vote. All comments were treated evenly and were not weighted by number, organizational affiliation, or other of factors. The Comment Summary Table has been compiled to reflect public comments and is contained in Appendix D.

The assessment of the comments identified an overall theme of water resources as a significant area of concern. Of the 2,100+ comments received, over 850 of the comments were related to water resources issues. Many of the scoping comments noted that the EIS planning area has an arid environment and that the local population relies heavily on groundwater to supply water needs. Other scoping comments stressed the concern for potential groundwater depletion (or wasting) due to CBM water pumping. Still other public scoping comments dealing with water resources presented concerns regarding contamination of surface water from discharge of high salinity groundwater, and the slow natural recharge rate for the coal-seam aquifers.

In addition to water resources issues, land impacts from CBM discharge appeared to be the second most common issue expressed throughout the scoping comments received. Land impacts noted in the scoping comments included disruption of the land surface from development activities and concerns over the impacts to soil and land use from discharge of CBM waters.

SUMMARY OF COMMENTS BY RESOURCE AREA

After reviewing and summarizing scoping comments (Appendix D), a discussion of scoping comments by resource area was prepared as a means of further clarifying the broad variety of comments received. The following summaries are by resources area as identified in the Project Plan and in the NEPA regulations.

Air Quality

A total of 62 comments were received on air quality issues. One third of the comments (23) questioned the cumulative impact of CBM development activities on air quality in the region. Two other areas that received a number of comments were the release of greenhouse gases during production (14) and control of dust during construction (12). Other comments included the need to model air quality impacts, the effects of multiple compressors on air quality and the global impact of CBM development.

Climate

No comments were received that dealt specifically with climate issues.

Cultural Resources

This category contained comments related to identification and protection of cultural resources, such as Indian artifacts, burial grounds, and other historically significant areas. A total of 53 comments were received. The two most common comments called for conducting a survey to identify all cultural resource areas (19) and the protection of all cultural resource sites (17). Other comments included protecting sacred sites, preserving historical area value, and protection of tribal customs.

Environmental Justice

No comments that related directly to environmental justice were received. However, several Indian Trust issues were raised that could be categorized as involving environmental justice criteria. Those issues included compensation for tribal losses, impacts to reservation surface water/groundwater, gas drainage onto Reservation land, and Indian-related agricultural job losses.

Geology and Minerals

Fifty-one (51) comments were received that directly related to geology and minerals. Comments generally made inquiry to area geology and if over-pumping of the water to recover the CBM could reduce ultimate gas recovery. Others expressed concern about gas and H_2S seeps, and the potential for subsurface coal fires.

Indian Trust

A total of 21 comments were received dealing with issues related to Indian lands or impacts to reservations. Numerous comments questioned whether the EIS would include the reservations and expressed disappointment regarding the content of the Redstone EA. Several others requested that an Indian expert be placed on the team to assess the social and economic impacts to tribal populations. Still, other respondents wanted to know if the tribe was going to be compensated for CBM development on lands adjacent to theirs. Other comments included concern for tribal waters, Indian lands and reservation mineral infringement.

Lands and Land Use

There were 142 comments related to Lands and Land Use. The most common concern identified was the effects of construction regarding roads, pipelines, and drilling (78). Other comments included concerns regarding noise, removal of land from agricultural use, land devastation, subsidence, and the identification of areas of critical environmental concern. Other comments expressed concern for the impact on ranching and agriculture from contamination of air, soil, and water.

Lands and Realty

A total of 54 comments were received related to land and reality issues. Most of these comments centered on protection of surface owner's groundwater resources (24), and notification of planned local work (28). Other concerns mentioned included the desire for landowner input into drilling activities, leasing process issues, and mineral estate issues.

Livestock Grazing

There were 70 comments related to livestock and grazing. Main areas of concern included the impact on agriculture and ranching operations (61), potential for stock ponds drying up, reduced forage due to development, the impact on livestock from drinking high salt/mineral water, and the amount of land removed from production due to development.

Paleontology

No comments were received on issues directly relating to paleontology.

Recreation

Only 14 comments were received that related to recreational activities. These comments generally dealt with the impact of CBM development on access to recreational activities such as hunting and off road vehicle use. Impact to hunting was the most common question received.

Special Status Species

There were 35 comments received on special status species. These were generally focused on two specific areas. One area was the impact on endangered species (27) and the other was the concern for the protection of threatened and endangered plants (8).

Social Economic Values

A total of 42 comments were received that dealt with social economic values. This section contained comments related to the impact on local population and towns due to CBM development. The most frequently mentioned comment on social economic values concerned potential unknown impacts on social service agencies (fire, police, hospitals, welfare) due to the influx of people and jobs (11). Other areas of concern include decreased land values, real estate price impacts, loss of agricultural jobs, and questions on the number of new workers to be brought in to do work.

Solid and Hazardous Waste

There were 13 comments related to solid and hazardous waste. All 13 comments expressed concern regarding the use of hazardous materials in the drilling and production of CBM.

Soils

There were 92 comments related to soils. The three most commonly mentioned concerns included erosion of soils and sedimentation due to discharge (26) and the effect of saltwater discharge on soils (52). Other comments stated anxiety for cumulative impacts due to the presumed high SAR value of discharge waters, effects of irrigating with discharge water, and the amount of topsoil that will be lost during development.

Vegetation

There were 103 comments related to vegetation issues. Some of the main topics of concern included potential productivity losses, effect on native plants and other vegetation, noxious weed infestation, and protection of grasslands in the Powder River Basin.

Visual

There were 35 comments received which pertained to the visual degradation of the area. Comments were focused on the natural beauty of the area being degraded by construction of roads and CBM production equipment. The most common comments related to the loss of visual beauty due to unsightly production facilities, and land disturbed by road and pipeline installations.

Water Resources

The largest number of comments received, (850) were related to water resources issues. These comments were further categorized into areas that include groundwater quality and quantity, surface water quality and availability, wastewater disposal and discharge, water conservation, water rights and groundwater resource assessment.

Groundwater Quality and Quantity

This category pertains to the effects of CBM development on groundwater quality and quantity. A total of 140 comments were received in this category. A number of comments suggested that CBM pumping would degrade groundwater quality. Other comments made note of potential cumulative effects due to CBM pumping and requests that cumulative groundwater impacts be included in the study.

Several comments expressed concern that CBM pumping would affect the quality of the groundwater. Additionally, concerns were expressed that groundwater aquifers would be contaminated from saltwater pumped from the ground. Several comments were also received that called for 3-D modeling to be performed as a means of predicting impacts to groundwater.

Surface Water Quality and Availability

A total of 198 comments were received which dealt with surface water quality and availability. Comments concerning the impact to surface water from CBM discharge were the most prevalent (129). Another comment questioned the cumulative/long term effect due to discharge of CBM water (54). Several respondents expressed concern about CBM discharge water coming from Wyoming and the resultant impacts on Montana

surface waters. Other comments mentioned in this section include interest in decreased surface water availability, and concerns about the wasting of groundwater as a resource.

Waste Water Disposal and Discharge

This category of comments pertains to the disposal and discharge of water from CBM production. A total of 97 comments were received. Comments in this section included siltation of rivers from increased flows, treatment of discharged water, landowner input into discharge on his/her land, and questions related to the injection of discharged water. The two most common comments were:

- The re-injection of wastewater into the same formation it was produced from instead of pumping it on the ground (42); and,
- The suitability of the discharged water for livestock and agricultural use.

Water Conservation

Water conservation issues were the most common comment received during the scoping process. A total of 260 comments were received that dealt with water conservation. The water conservation topics covered aquifer drawdown and recharge, water replacement cost, permitting questions, and the wasting of water resources. The two most common comments were:

- Water recovery well will go dry due to a lowered water table as a result of CBM development (119); and,
- Aquifer recharge rates will be affected due to CBM development (90).

On the evidence of the comments, there was a particular interest concerning the fate of private water wells under the influence of CBM development. Based on review of the scoping comments, it is evident that public groundwater concerns exist in many areas of the state, but are most acute in the Powder River Basin (PRB).

Water Rights

A total of 43 comments were received that discussed the issue of water rights. Most of the comments were questions on the CBM use of groundwater without obtaining the rights to produce the water. Several comments reviewed suggested the need for the EIS to ensure that water rights would be protected.

Groundwater Resource Assessment

There were 78 comments were received that recommended the preparation of a groundwater resource assessment. Over half of the comments (55) were stressing the need to gather baseline data on all groundwater resources prior to development of CBM. The second most common comment (14) was a request to prepare a 3D map of all the aquifers in the project area. Other comments included the need for a regional water plan and development of a groundwater resources database.

Wilderness Study Areas

There were no comments received related directly to wilderness study areas.

Wildlife

There were 280 comments related to wildlife issues. Most of the comments were related to the impact of development on wildlife habitat, fisheries, migrating animals and the impact to the breeding of many species. The most common comment was concerning the effects of development on deer, migrating birds, etc. (191).

OTHER ISSUES

An additional seven (7) issues were identified from the remaining comments that could not be categorized under these resource areas. These additional issues included legal and institutional, financial, design and engineering, safety, restoration and enhancement, schedule, and miscellaneous concerns.

Legal and Institutional

There were 28 comments received that related to legal and institutional issues. These comments included issues related to the rules involved in the EIS process, and questions on the development of rules that CBM operators will be required to follow. The most common comment was requesting that CBM operators be required to follow strict environmental rules (11). Other comments included establishing an outside monitoring agency, following the NEPA process, identification of future impacts, and the identification of areas where CBM development should not take place due to high environmental risk.

Financial

This category contained comments supporting the development of CBM as related to the economic benefits, tax revenues and job potential. Other comments concerned the requirement for bonding of operators. There were a total of 51 comments received in this category.

Design and Engineering

A total of 30 comments were received that discussed the design and engineering aspects of CBM development and the EIS. The comments centered around the need for information on how CBM development would be conducted. The most common comment related to well density. Other comments questioned the development timeframe and duration. Still others questioned the number of roads and pipelines, and how many operators will be involved with CBM development.

Safety

A total of 7 comments were received related to the safety of CBM development and an overall concern about the health risks related to CBM development.

Restoration and Enhancement

There were six (6) comments related to two issues of restoration and enhancement received. These two issues were that CBM operators must explain restoration plans (4) and a question on what happens after the development is complete.

Schedule

Thirty-four (34) comments were related to the schedule of the EIS effort. Over half (21) of the comments said that the EIS should not be rushed. Other comments received were that the BLM did not allow enough time for scoping comments to be received, that the BLM is rushing the process, and that there is a concern that the EIS is being fast-tracked to completion. A few comments expressed support for a fast-tract EIS so that development would not be unduly delayed.

Miscellaneous

There were 90 comments that could not be categorized in the other areas of concern. These comments ranged from requests for site specific EIS's (16) to a request that the area should be test drilled by a consortium prior to leasing to operators. Some of the more common comments were a request to look at cumulative impacts, suggestions that BLM should look at Wyoming for examples of the CBM process, and a request for a 2 to 5 year moratorium on drilling to study the impacts of CBM development.

4.0 RECOMMENDATIONS

EIS SCOPING ISSUES

An analysis of the comments received revealed that nearly every issue conceived in the Project Plan with regards to resource areas was of some concern to the respondents. The respondents also included comments that addressed other NEPA areas, such as Environmental Justice, Indian Trust, and Land and Land Uses. Although, no specific comments were received regarding Climate or Paleontology issues, these will need to be included in the EIS to assess impacts, if any.

This analysis indicated that the public is fairly well informed regarding the potential impacts from CBM development, and that the BLM's public affairs efforts are being received with interest. With this in mind, it is recommended that some clarification of the resource area objectives or inquiries as laid out in the Project Plan, be conducted, but for the most part the Project Plan is adequate as written. The steering or narrowing of issues provided by public scoping comments will assist in addressing the factors for amending the RMPs. These factors include the following:

- Potential for CBM development;
- Cumulative impacts of the RFD scenario with regards to existing management, the preferred alternative and other alternatives under consideration;
- Opportunities and surrogate ideas for resolution of resource management methods in harmony with the theme of alternatives developed;
- Proven methodology for conducting the Social Impact Analysis; and
- Alteration of existing conventional oil and gas management techniques.

These factors will undergo a further analysis with regards to comments received that address other issues such as Legal and Institutional, Financial, Design and Engineering, Safety, Restoration and Enhancement and Scheduling. It is recommended that the EIS and RMP amendment process consider some of these comments which could not be categorized in a specific resource area, but that may have more of an overall direction for the process identified. These more general comments include concerns regarding:

- Development period (10 years), should it be increased;
- Artificial inducements to increase production;
- Fast schedule of EIS;
- Land restoration once development is completed;
- Request for site specific EIS in development areas;
- Delay of development due to EIS process;
- Reclamation actions required of operators;
- Use of USDA data matrix to conduct cumulative effects analysis; and
- Increase scope of EAs.

Finally, it is worth noting that numerous comments were received supporting the EIS process and CBM development in the Powder River Basin and throughout the State.

TECHNICAL REPORTS

Prior to the public scoping process, an assumption was made that two technical reports would be required for the EIS effort. Anticipated technical report issues included groundwater resources and soils issues. These were chosen as issues based on knowledge of the CBM development issues, but with the understanding that the topics could change based on the outcome of the public scoping process. After completing the review of the public scoping comments, it has become apparent that these topics are very appropriate based on the types of comments received. In addition, the technical report on soil issues needs to be expanded to include issues pertaining to the impact of CBM development activities on the entire land related system that includes soil, vegetation, erosion, and land use. The following paragraphs discuss the information received that validates the decisions to prepare technical reports on these two subjects.

Water Resources

The single most remarked-upon issue at the public scoping meetings was water resources. Many citizens, associations, and government agencies were concerned about the impacts of CBM development on groundwater resources, on surface water resources, and on water quality. Although many citizens were concerned about water impacts statewide, the majority of concerns applied to the PBR. The PRB is also the area where CBM development is expected to be most intense.

The Technical Report does not have to be restricted to the Montana portion of the PRB, a primary focus of this area appears to be justified based on scoping comments. Statewide concerns could be compared to technical analysis performed in the Montana PRB. Some of these areas are believed to have a considerable amount of hydrological data where good estimates may be made about possible impacts to groundwater from CBM. Other areas have prospective coals, but appear to have scant data relating coals as related to drinking water or livestock use aquifers. It is possible that some areas may not have sufficient data to draw meaningful conclusions about possible impacts.

Issues anticipated for consideration in the groundwater resources technical report include:

- Hydro-geological Framework
- Reservoir Parameters and Regional Variations
- Faulting and Fracturing
- Artificial Penetrations Including Oil and Gas Boreholes, Seismic Shot-holes, and Stratigraphic Boreholes
- Groundwater/Surface Water Interaction
- Groundwater Usage by Aquifer and by Area
- Water Quality

- Hydrology Regime as Mapped in Previous Studies, Especially the Modeling Done by the Wyoming BLM on the Wyoming Portion of the PRB
- Potential Groundwater Production from Private Water Wells, Industrial Wells, and CBM Production
- 2-D Draw-down Models According to Site-specific Conditions Across the Area
- Sensitivity to Parameter Uncertainty
- Geographic Distribution of Groundwater Resource Impacts Including Reservoir Draw-down and Recharge to other Aquifers and Surface Water
- Geographic Distribution of Surface Water Impacts Including Water Quality
- Summary of Water Impacts

One additional concern identified through the public scoping process is the fact that the EIS area is the entire state of Montana. Current plans for the water resources technical report include an area limited to the Powder River Basin. BLM and its cooperators should consider whether similar technical analysis should be performed in other areas of the state where CBM development is likely. Although increasing the area goes beyond the current plan, plans for addressing areas outside of the PRB should be considered.

Soil and Land Impact

The second technical report to be prepared in the EIS was planned for the analysis of soil impacts related to CBM development. Details of this report would focus toward issues related to impacts from produced water discharge including salinity, sodium adsorption ratio (SAR) and other considerations. This report was planned as a less comprehensive report than the groundwater resource report and would require a less intensive effort to prepare. After analyzing the results of the public scoping process, it has become apparent that the issues related to soils is of a much higher concern than was anticipated in the work planning process.

In a review of the comments received, 368 comments can be related to soils and land impacts from CBM development. These comments include 276 concerns that relate to land use and vegetation. Soil issues such as discharge and SAR problems impact each of these issues. Due to the believed significance of the comments received on all these issues, ALL is recommends that the soils issue technical report be expanded to include the issues related to land use and vegetation. This recommendation is based on the following issues obtained from the scoping process.

Issue No. 1 – Impact of Discharge of High Salinity Water on Soils

CBM development will produce large quantities of water along with the methane. Some of this water will come from zones that have salinity and SAR values that are higher than the available surface water in the area. Discharge of this high salinity water will cause an increase in the overall salinity of the surface water it is discharged into. This overall increase in salinity of surface water can cause problems with livestock use, reduced agriculture production due to a build up of salinity in the soil from irrigation, and impact users down stream of the production area.

A second area of impact to soils from discharge is in areas where the discharge of water is into closed basins. Water discharged into closed basins will drain to the lowest point in the basin and pond up. These low areas typically hold rainwater during rain events, but tend to dry up during the dry part of the year. The sustained flow of water into these low areas will kill off vegetation and allow the accumulation of salt in the soil. This will create a barren area that will alter the vegetative status of the area and allow the establishment of weedy species, potentially noxious weeds, which may take hold and be difficult to replace.

Issue No. 2 – Discharge of Water Can Increase Erosion Problems

Discharge of large volumes of produced water can cause an increase in erosion of creeks and streambeds due to the increased flow. Streams and creeks that normally only flow intermittently or with low volumes will have increased flow that will cause increased erosion along stream banks. This increased erosion also increases the silt carried downstream with effects to the water bodies to which the streams and creeks flow.

Issue No. 3 – Agricultural Impacts

The impact to agricultural production due to CBM development is due to many potential technical issues. Lands irrigated using water pumped from the Tongue River could see an overall increase in the salinity and SAR values of the irrigation water due to discharge upstream. As the soils are irrigated over a number of years, the precipitation of the sodium into the soil can cause a reduction in the productivity of the soil due to grasses and crops not being salt tolerant.

The impact to livestock production is unknown. Livestock can typically use higher salinity water for drinking, but impacts from the additional minerals and high salt concentrations on herd size are unknown. The largest impact to livestock production is from the loss of grazing lands due to the construction of roads, pipelines, drilling locations and water storage pits. As more land is lost to CBM development, there will be an overall reduction of the number of acres available for grazing for livestock and wildlife. ALL believes that land use impacts to agriculture need to be examined in a technical report.

Issue No. 4 – Impact to Soils from Construction of Roads, Pipelines, and Drilling Pads

The impact from the construction of roads, pipelines and drilling pads is seen in a few different ways. One major impact is runoff from channelized flow in two-track roads and pipeline rights-of-way that have been compacted and/or cleared of vegetation. In steep areas where cut and fill road construction is required, increased erosion is a problem due to higher flow velocities for the runoff water. A second area of impact is the increase in wind erosion due to the exposing of more soil surface. As roads, pipeline and drilling pads are constructed, the topsoil is exposed and can be eroded away by the constant winds that blow in the area. A third impact from construction is a potential reduction in the growing capacity of the soils due to a mixing of topsoil and subsurface soils during backfill and reclamation, and the compaction of the soil from the construction equipment.

Issue No. 5 – Noxious Weed Influx

An area of concern mentioned often in the public comments was a concern for the influx of non-native plants and weeds into the grassland areas. The Tongue River basin is one

of the largest contiguous grassland areas in the Northern US and the scoping comments included concerns that as CBM development increases, the increased road building and traffic will bring non-native plants into the area. These non-native plants have the potential for displacing the native plants and taking over the grassland areas. Many of these non-native plants are not attractive to the wildlife that grazes on the existing grassland. Over time there is a concern that large portions of the area could be lost to non-native/noxious weeds and wildlife populations could be affected.

These are just a few of the impacts identified in the scoping process. There were additional comments received that related to soils and land use and would be included in the preparation of the soils technical report. The impacts identified are much greater than was originally planned for the second technical report. The second technical report was only envisioned to be a small effort requiring minimal time and effort as compared to the groundwater technical report. As a result of the scoping process, it is apparent that soil and land issues are of a much greater concern that originally envisioned and preparation of the technical report will be a much larger effort. ALL is suggesting that the soils technical report be increased in scope to include land impacts from CBM development. Further discussions are needed with BLM to quantify the level of effort that BLM would like to include for this technical report.

Air Quality

Air quality impacts were a major concern of the commenting public. Given the time frame available to complete the EIS, modeling air impacts may not be feasible. An alternative approach would be to collect and utilize existing information to predict air impacts from CBM development and production in Montana. Some modeling of emissions, climate, etc. may be needed as part of this effort. Resulting information could then be developed into a technical report to be included in the EIS as an appendix. At this time, we do not know what type and/or quality of information is available to prepare a technical report as opposed to conducting another modeling effort. During the scheduled conference call on February 23, 2001 we hope to ascertain the type and availability of the subject data, so that an informed decision on which approach to pursue can be made.

ALTERNATIVE DEVELOPMENT CONSIDERATIONS

Pursuant to the Draft Project Plan, BLM will develop resource management alternatives in collaboration with the state and other cooperators. ALL will assist in the development of alternatives as also specified by the BLM. In an effort to initiate that process, a summary of various issues to be considered during the development of resource management alternatives has been included in this document based on the public scoping process. These considerations include the level of development, the potential of a phased development approach, best management practices and mitigation measures, and conservation considerations.

Each of the above listed considerations is described in greater detail in this section. It is the objective of this discussion to provide information derived from the scoping process for use in the development of resource management alternatives.

Phased Development

The U.S. Environmental Protection Agency (EPA) provided comments suggesting that consideration be giving to managing the resource in a phased manner. Certainly, phased development has merit and BLM and the State could place restrictions on the number of wells that could be drilled and completed on an annual or alternative basis. However, a phased approach might also be viewed as placing unnecessary limitations on coal bed methane developers. Regardless, a phased development approach should be considered during the development of resource management alternatives.

Level of Development

The RFD from the BLM suggests that a maximum number of CBM wells in the PRB, Billings Region, and Blaine, Park, and Gallatin counties may be as high as 40,000. Latest estimates of in-place CBM reserves for Montana are approximately 40 TCF. Estimates of the ultimate number of CBM wells is dependant on the time period involved, the availability of drilling capital, the price of natural gas, and the ability of the industry to drill CBM wells. If the EIS looks at a period of 10 years, then it is safe to assume that the industry could drill 40,000 CBM wells. If the price of natural gas stays at its present level – approximately $6.00/ MCF – then the drilling capital would certainly be attracted to drilling 40,000 wells. The current pace of drilling in Wyoming supports such an estimate for Montana. The success rate of finding and producing CBM is unknown, but may be compared with Wyoming where success has been high. Undeveloped portions of Montana could be similar to Wyoming or could be less or more, only time and experience will refine the estimate. Low, medium, and high levels of development should be considered as well as variations of alternatives that generally include full-field development (provided adequate mitigation is available).

Management Practices and Mitigation Measures

Based on the public scoping process, management practices and mitigation measures appear to be a significant aspect of the successful development of coal bed methane in Montana. Alternative development that includes variations of best management practices (BMPs) and mitigation measures (MMs) would be consistent with many of the comments received as part of the scoping process. These BMPs and MMs may be able to be formulated in a manner that could reduce impacts to the environment and address many of the concerns raised during the public scoping process. Although there are perhaps an unlimited number of BMPs and MMs that could be considered, some may include produced water re-injection, coal aquifer recharge, recharge of non-coal aquifers, pre-treatment of produced waters, utilization of surface impoundments, limited surface discharge, aquifer storage and recovery, use of downhole gas/water separation technology, among others. BMPs and MMs could also relate to infrastructure development along with other practices that relate to nearly all resource areas.

Conservation Considerations

Conservation issues should also be considered when developing alternatives for management of impacts. Conservation of soil and water resources needs to be considered when developing management alternatives.

Water Conservation

The southern central and eastern portion of Montana is an arid environment that receives limited rainfall during the year. As such, groundwater availability is a significant issue with landowners in the area. CBM production requires the production of moderately large quantities of groundwater to release the methane from the coal. Water conservation opportunities could include the following items:

Limited production of groundwater – Development activities could be limited to groundwater production rates. While this would conserve water resources, it would likely limit the production of methane.

Re-injection of the groundwater into the coal seam – Re-injection of the water produced back into the coal seam would allow the recharge of the water table. This would require the installation of more wells and could impact the overall land use impact.

Water conservation for CBM development is difficult to address. In order to develop CBM, water will need to be pumped from the ground. Selected alternatives could be developed to consider these or other conservation issues.

Soil Conservation

Soil conservation issues related to CBM development include erosional concerns, increase of soil salinity from CBM water discharge, and loss of vegetation due to construction of roads, pipelines, and drilling pads. These issues should be considered during the development of resource management alternatives. Some of the issues that may be considered as part of the resource management development process are presented below:

Limit surface impact from development – Resource management alternatives could require developers to limit the surface impact of the development project. The amount of roads and pipelines installed can be reduced by encouraging operators to drill multiple wells from one drilling pad. By drilling multiple pods of wells from one location, the total miles of roads and pipelines installed can likely be reduced, therefore reducing impacts to soils and the environment from construction and erosion.

Require restoration of the sites after completion – In an effort to reduce long-term soil conservation impacts, resource management alternatives could include site restoration considerations following cessation of various CBM production activities (e.g., drilling, production, etc.) as is common to many typical requirements when federal minerals are involved.

APPENDIX A

- **BLM New Release**
- **Notice of Intent**
- **Copy of Brochure Mailed to Citizens**
- **List of Organizations Receiving News Release**
- **Article and Announcements Regarding Scoping Meetings**

APPENDIX B

- **Copy of BLM Presentation Used at Scoping Meetings**
- **Comment and Suggestion Form**
- **Sign-in Sheets from each of the Scoping Meetings**

APPENDIX C

- **Copy of Recent News Articles Appearing in Montana and Wyoming Regarding Coal Bed Methane Development**

APPENDIX D

- **Comment Summary Table**